

FIG.1A

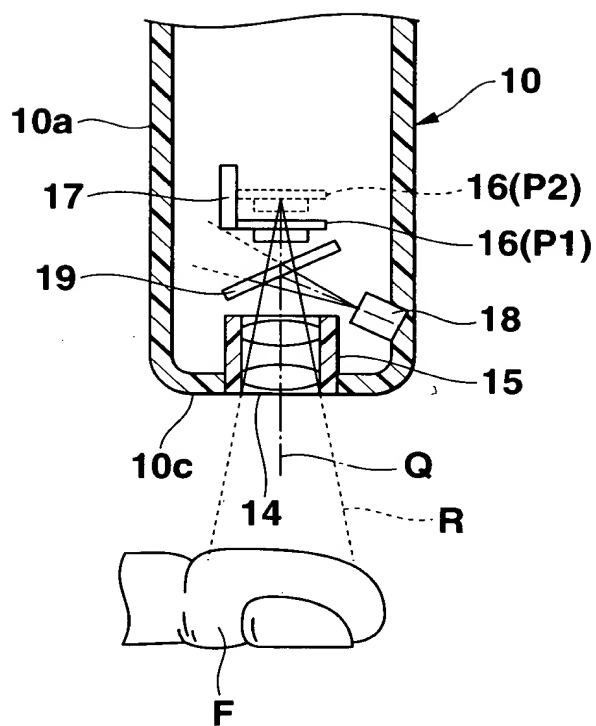


FIG.1B

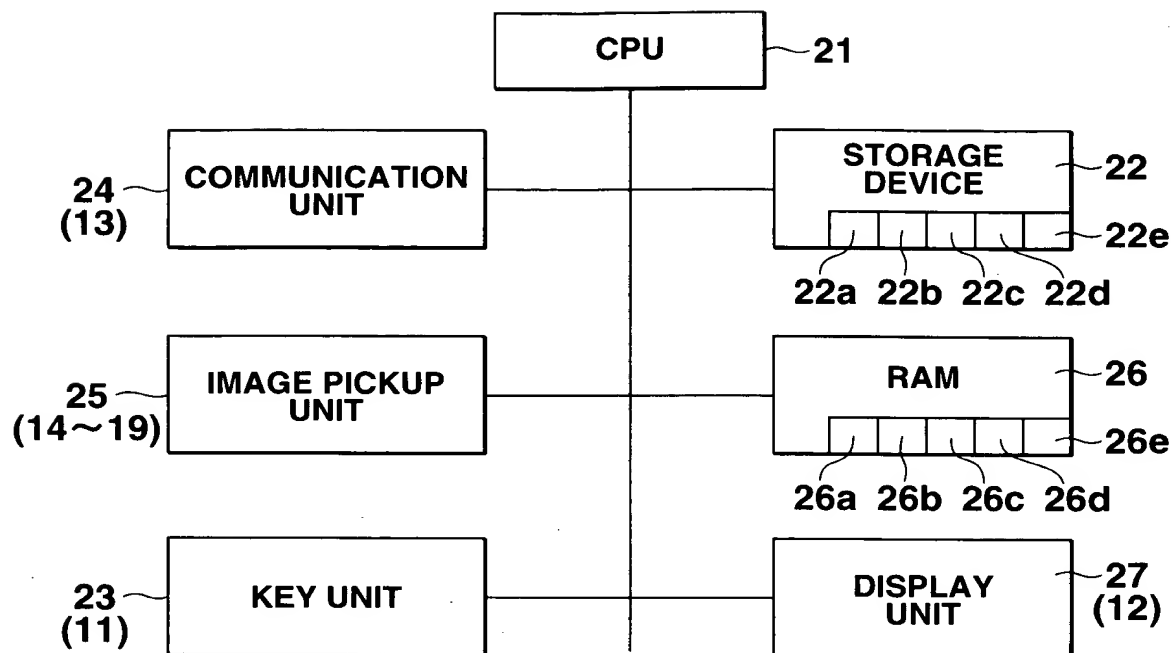


FIG. 2

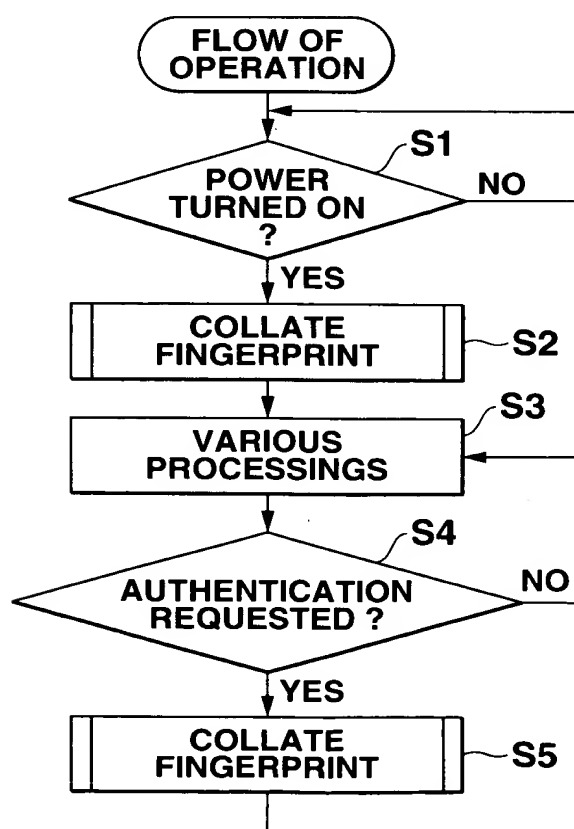


FIG. 3

09501549.070904

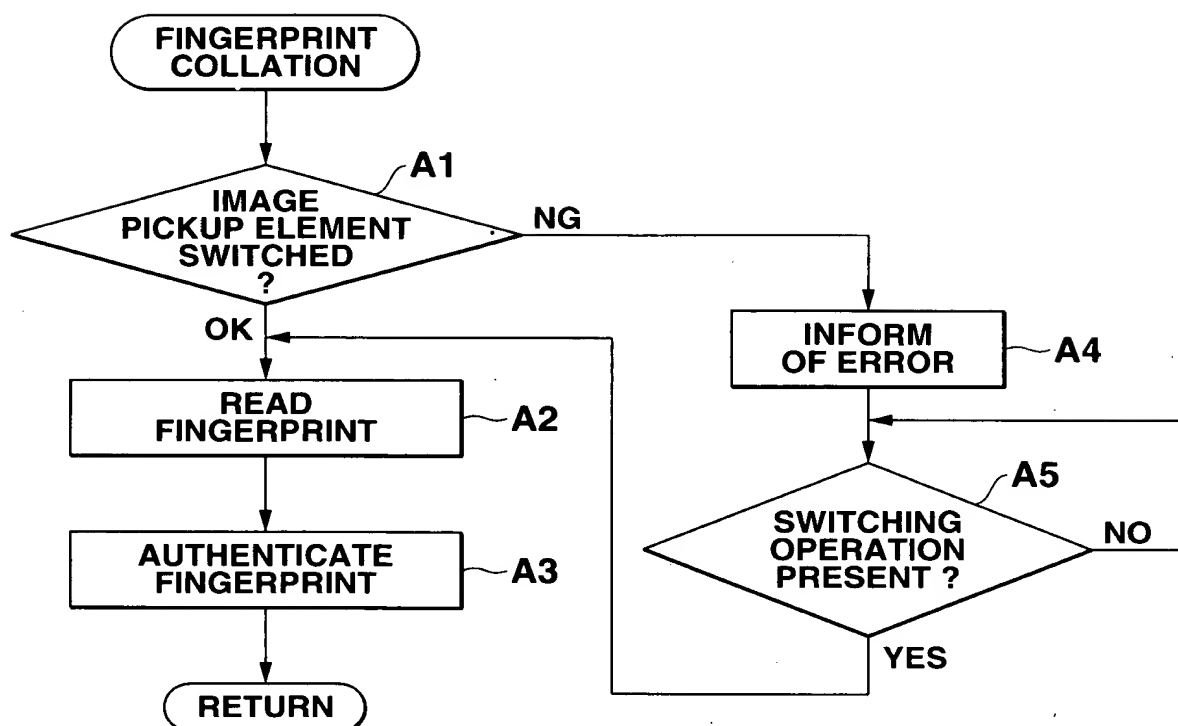
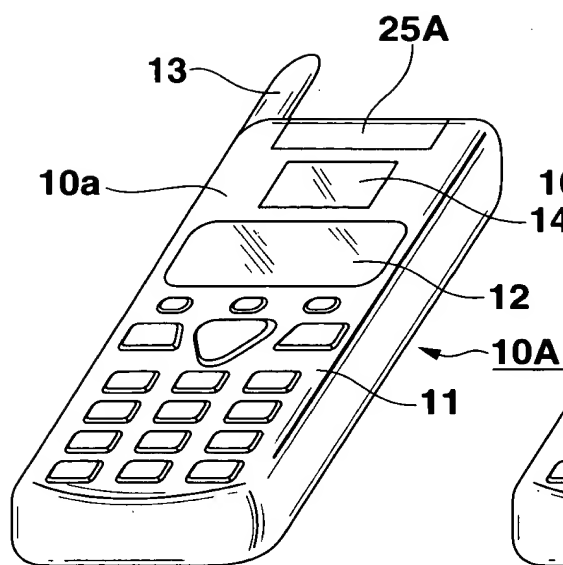
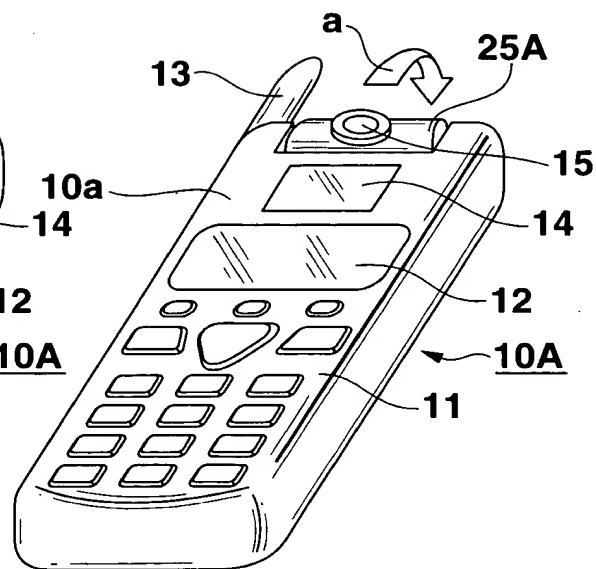


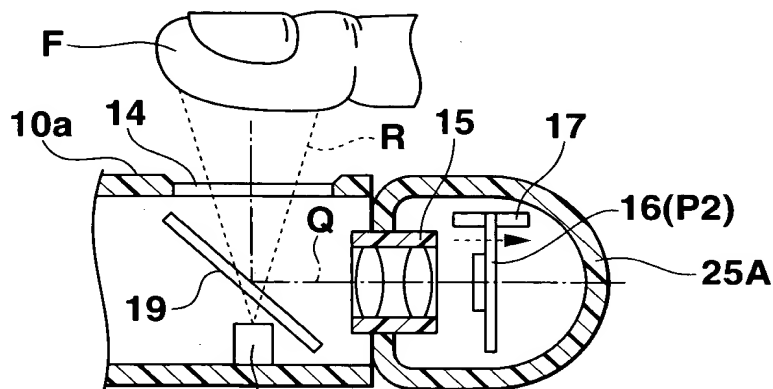
FIG.4



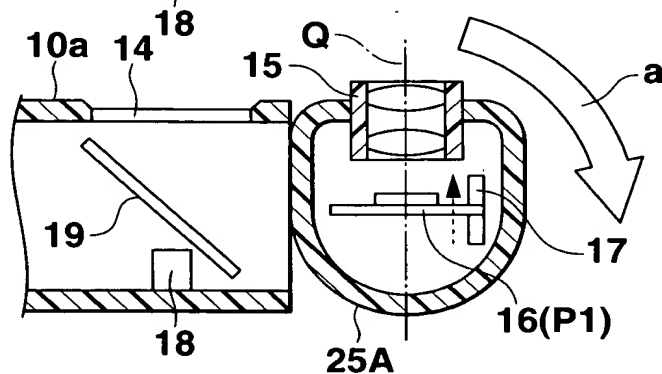
**FIG.5A**



**FIG.5B**



**FIG.6A**



**FIG. 6B**

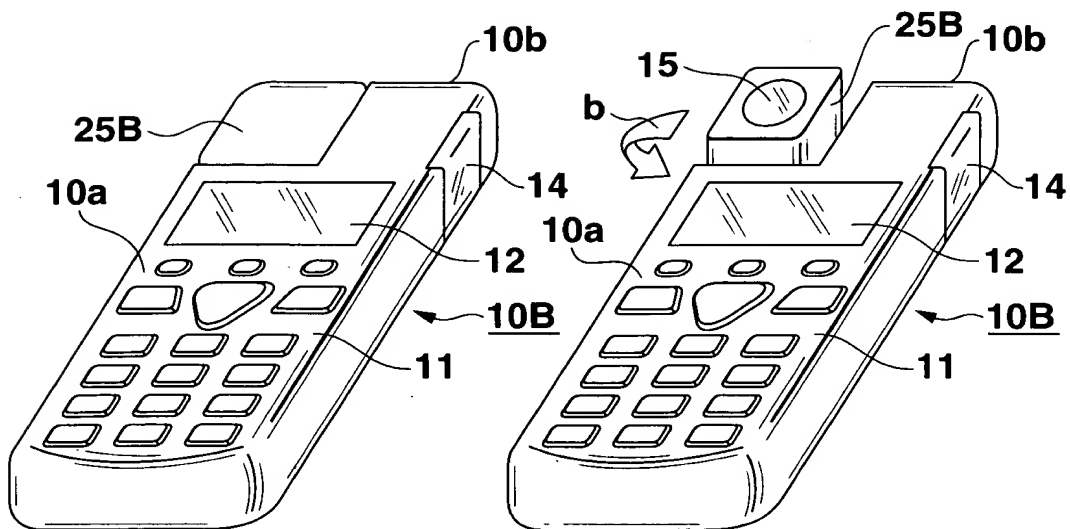


FIG. 7A

FIG. 7B

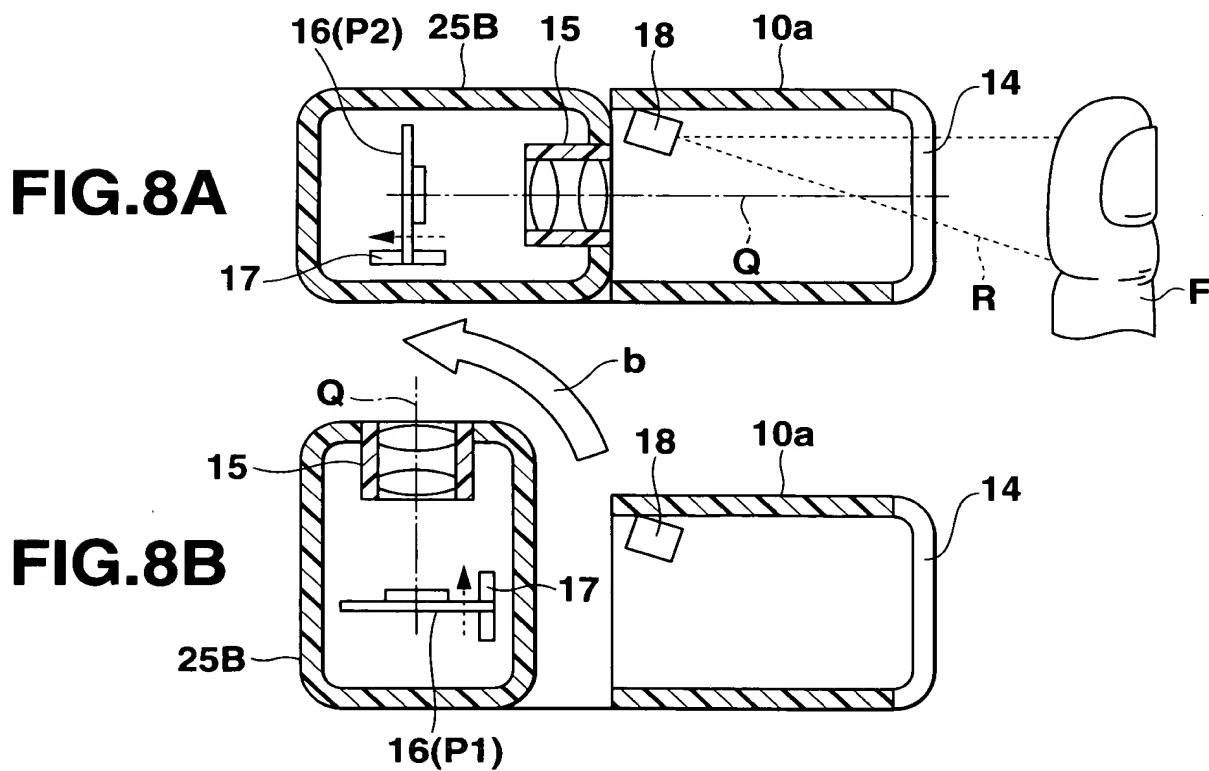
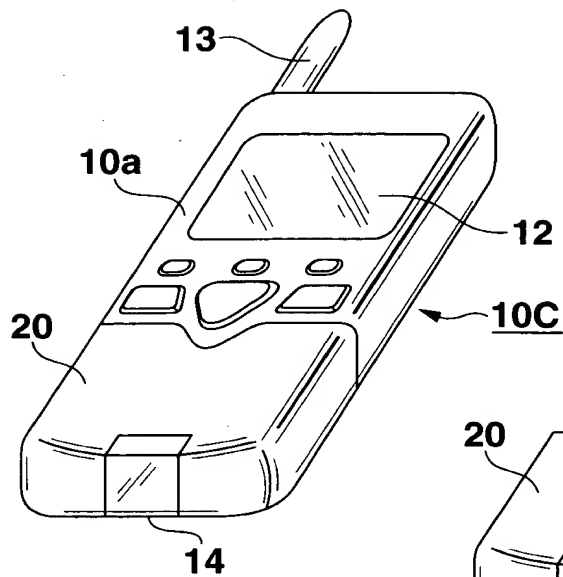
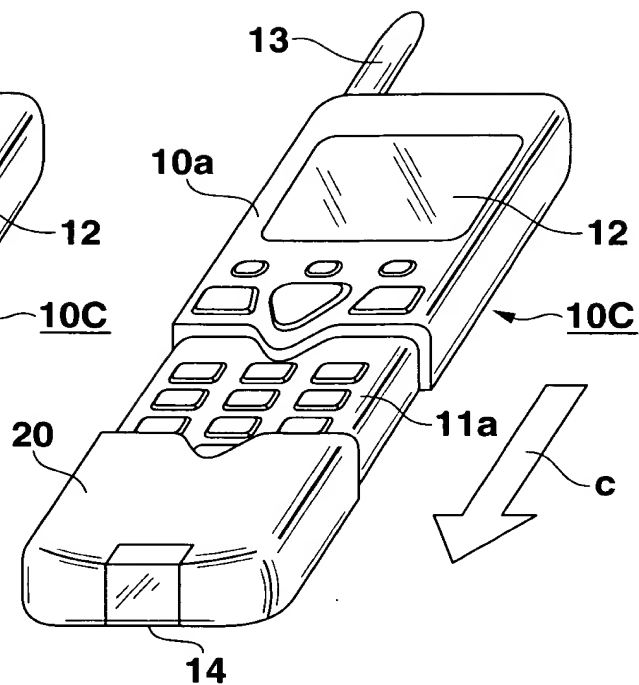


FIG. 8A

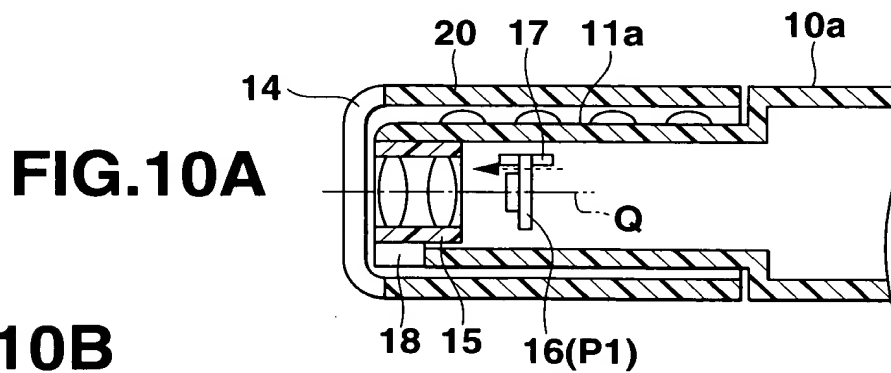
FIG. 8B



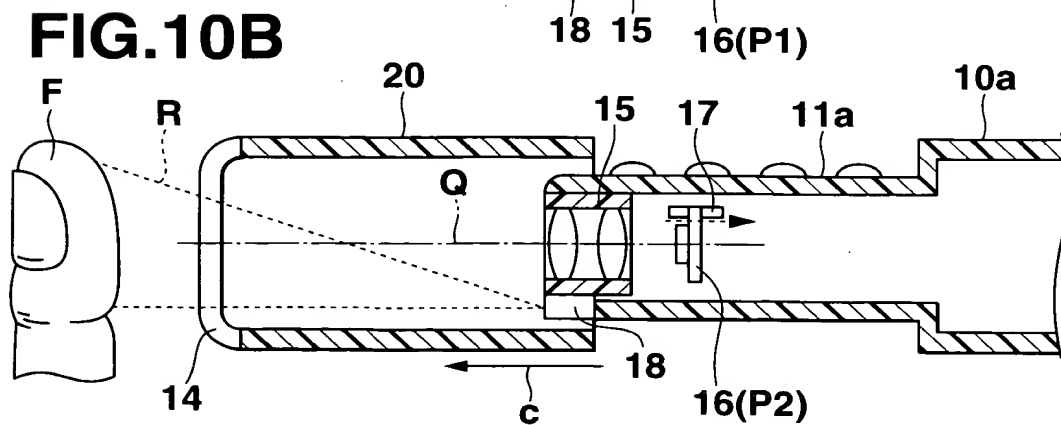
**FIG. 9A**



**FIG. 9B**



**FIG. 10A**



**FIG. 10B**

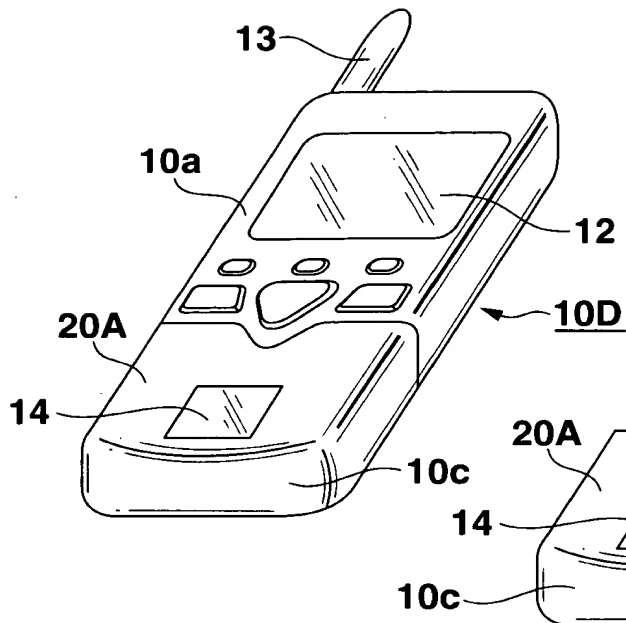


FIG. 11A

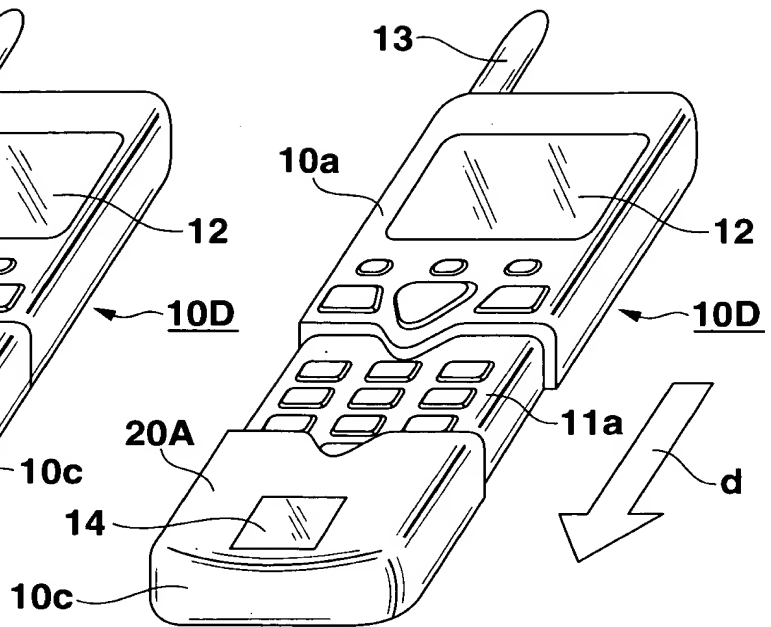


FIG. 11B

FIG. 12A

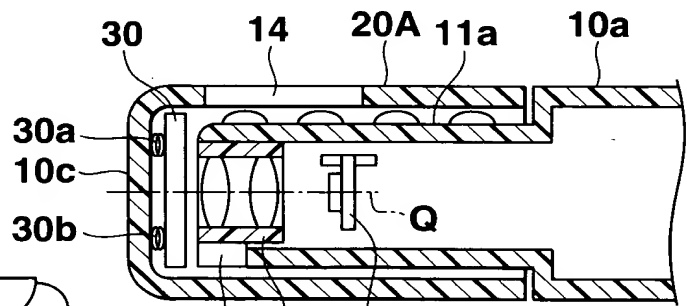
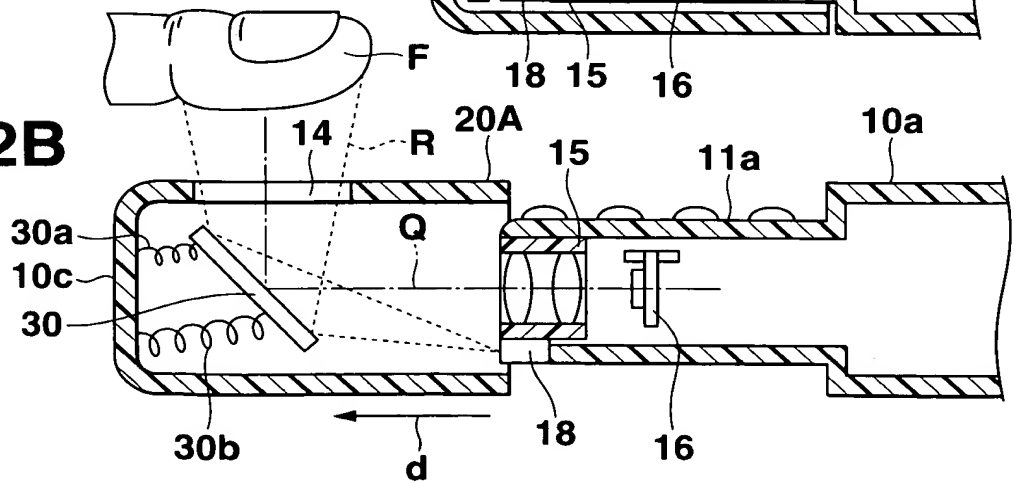


FIG. 12B



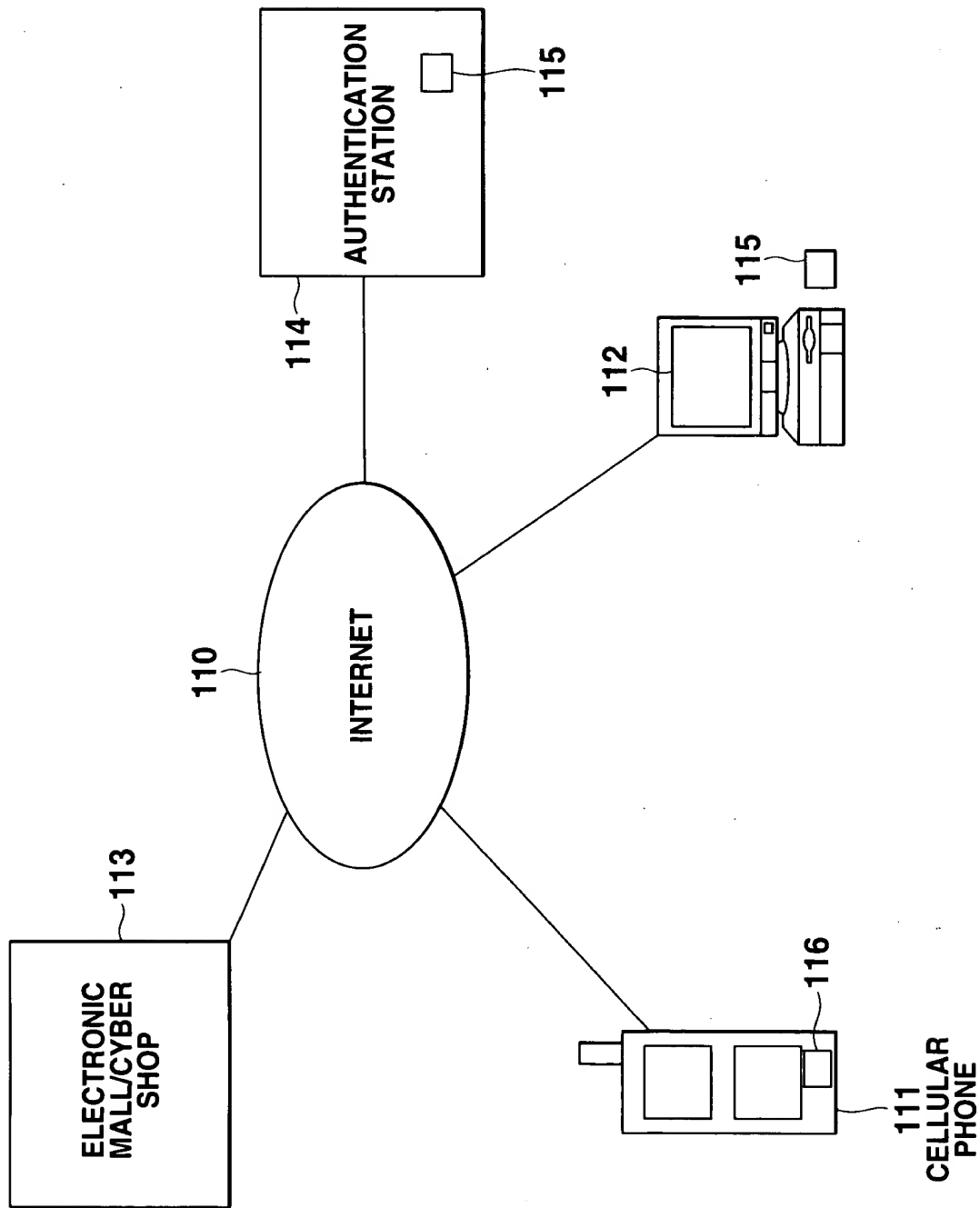
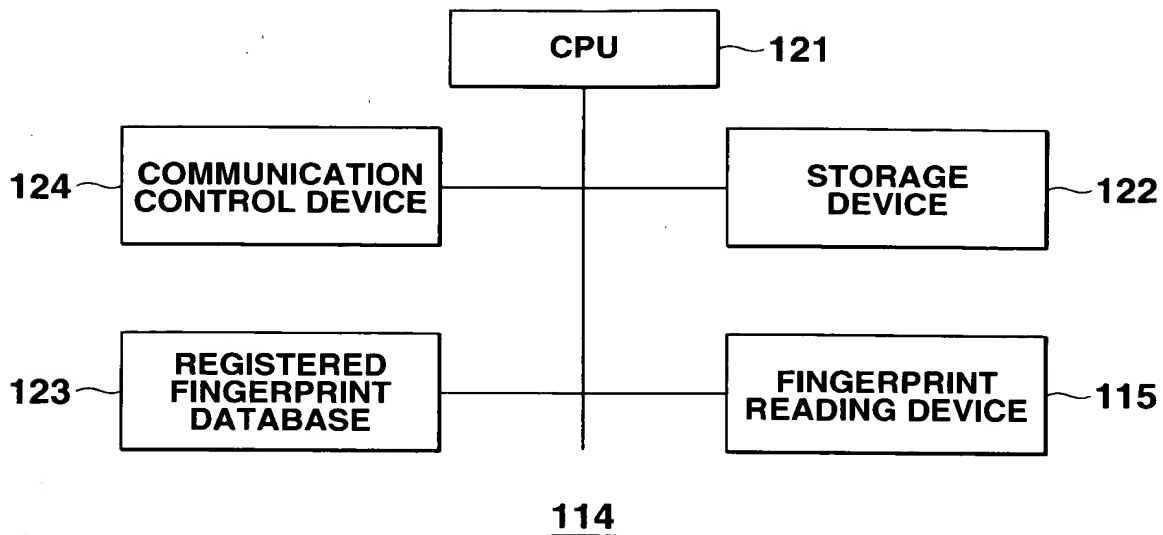


FIG.13





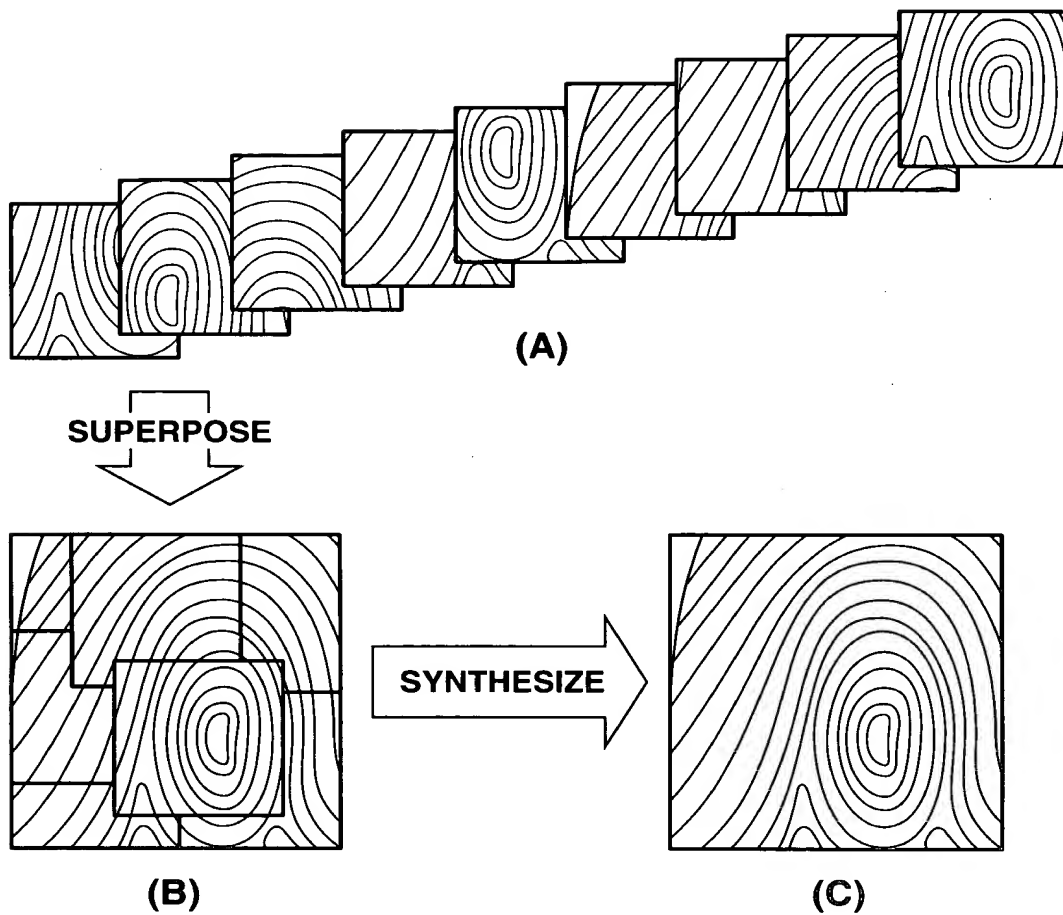
**FIG.14**

**123 (SERVER REGISTRATION DATABASE)**

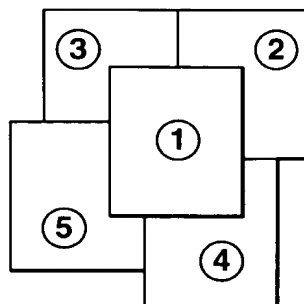
| NAME      | ID   | REGISTERED FINGERPRINT IMAGE | IMAGE SPECIFICATION                       | EXTERNAL OUTPUT | ENABLE TERMINAL |
|-----------|------|------------------------------|---|-----------------|-----------------|
| AIDA      | 0001 |                              | 8 bit color,<br>300 × 300dot,<br>50mpitch | ENABLE          | xxx             |
| TANAKA    | 0002 |                              |   | DISABLE         |                 |
| NAKAMATSU | 0003 |                              |   | DISABLE         |                 |
| MATSUMOTO |      |                              |   |                 |                 |
| MOTOKI    |      |                              |   |                 |                 |

**FIG.15**

106020-64510660



**FIG.16**



**FIG.17**

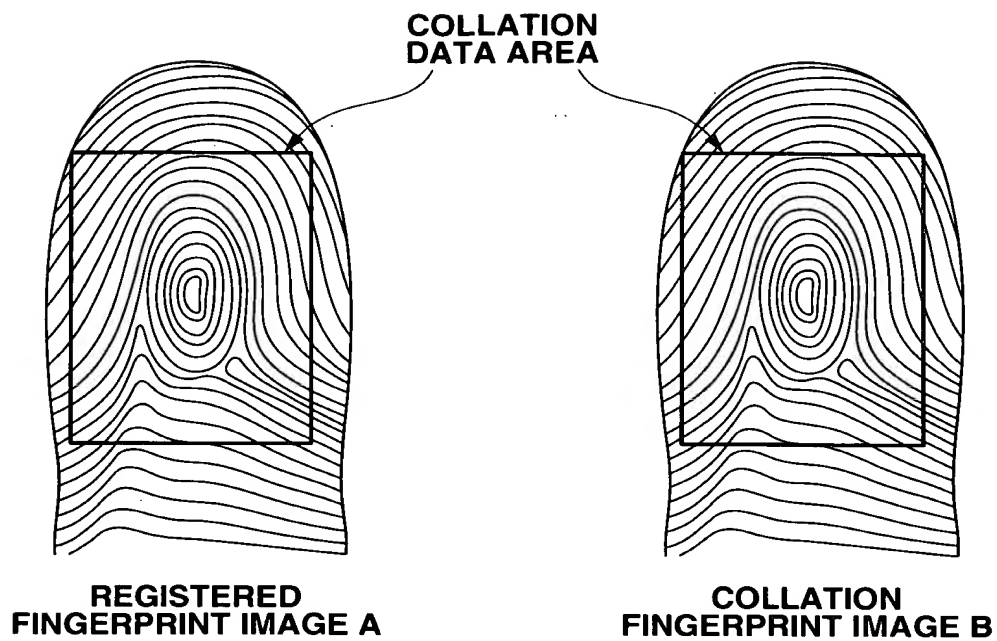


FIG.18

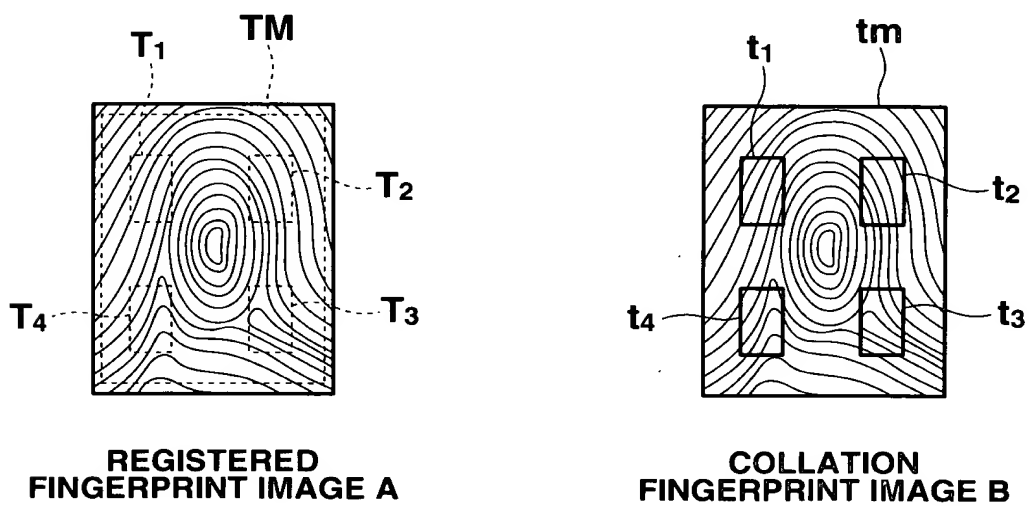
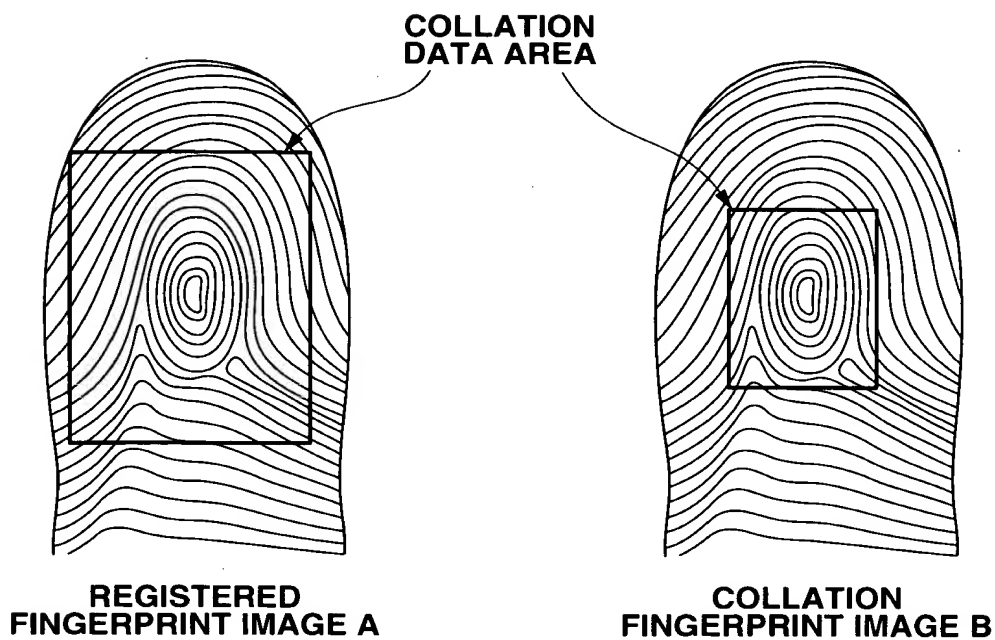
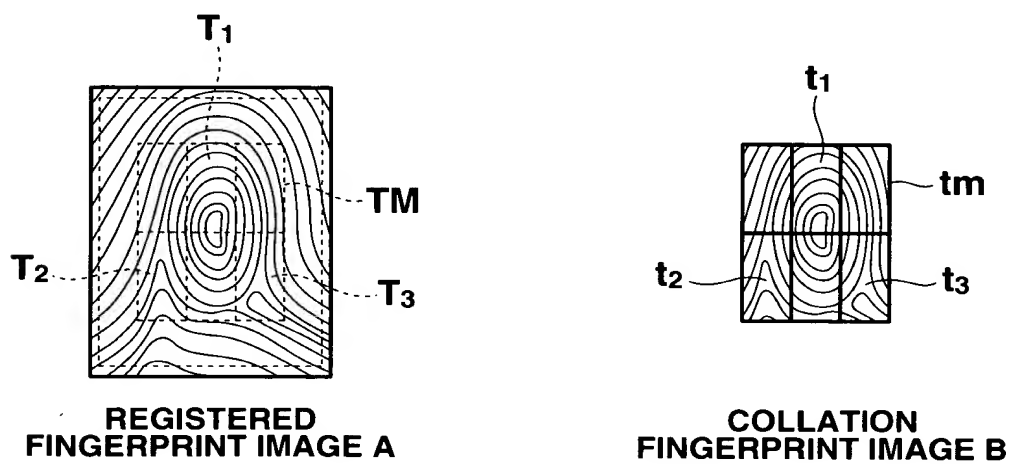


FIG.19

00001549 070901  
105070 64510660



**FIG.20**



**FIG.21**

|              |                |                   |                  |
|--------------|----------------|-------------------|------------------|
| DATA<br>SIZE | PIXEL<br>PITCH | GRADATION<br>DATA | TOP OR<br>BOTTOM |
|--------------|----------------|-------------------|------------------|

(IMAGE HEADER DATA)

**FIG.22**

```

graph TD
    subgraph Terminal
        A1[REQUEST REGISTRATION AND INFORM OF IMAGE SIZE] --> A2[DISPLAY GUIDANCE MESSAGE]
        A2 --> A3[INPUT FINGERPRINT]
        A3 --> A4[RECEIVE MESSAGE]
        A4 --> A5[DISPLAY CONFIRMATION]
        A5 --> E1([END])
    end

    subgraph Authentication_Station [AUTHENTICATION STATION (REGISTRATION SERVER)]
        B1[RECEIVE REGISTRATION REQUEST AND JUDGE IMAGE SIZE] --> B2[INFORM OF GUIDANCE MESSAGE]
        B2 --> B3[RECEIVE INPUT IMAGE]
        B3 --> BC[NORMALIZE IMAGE]
        BC --> B4{IMAGE OK ?}
        B4 -- YES --> B5[TRANSMIT MESSAGE]
        B4 -- NO --> B2
        B5 --> B6[EXECUTE REGISTRATION PROCESSING]
        B6 --> E2([END])
    end

    A1 -.-> B1
    B2 -.-> A2
    A3 -.-> B3
    B5 -.-> A4
  
```

The flowchart illustrates the registration process between a **TERMINAL** and an **AUTHENTICATION STATION (REGISTRATION SERVER)**.

**Terminal Process (Left Column):**

- a1** REQUEST REGISTRATION AND INFORM OF IMAGE SIZE
- a2** DISPLAY GUIDANCE MESSAGE
- a3** INPUT FINGERPRINT
- a4** RECEIVE MESSAGE
- a5** DISPLAY CONFIRMATION
- END**

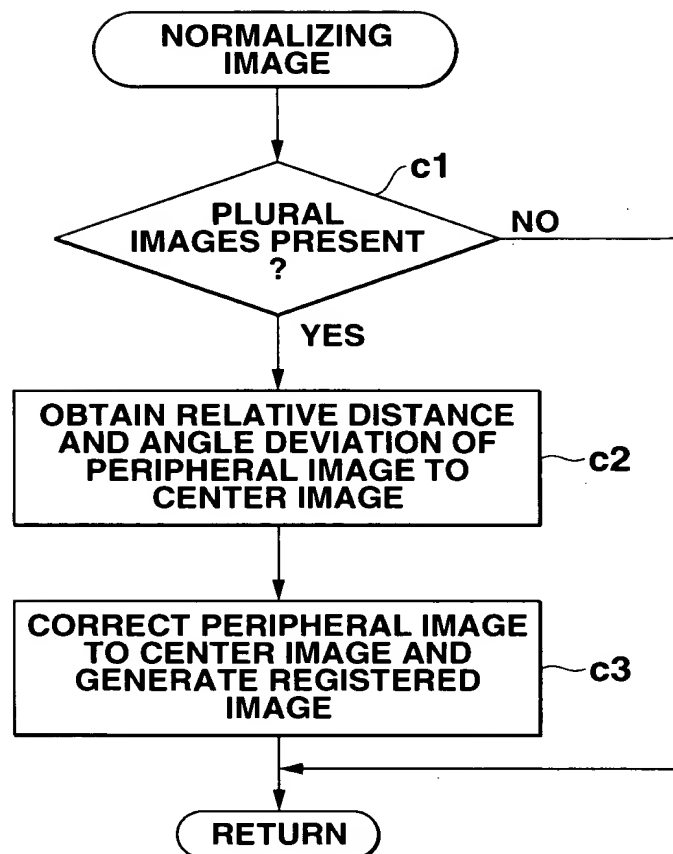
**Authentication Station Process (Right Column):**

- b1** RECEIVE REGISTRATION REQUEST AND JUDGE IMAGE SIZE
- b2** INFORM OF GUIDANCE MESSAGE
- b3** RECEIVE INPUT IMAGE
- bc** NORMALIZE IMAGE
- b4** IMAGE OK ? (Decision point)
- If **YES**: **b5** TRANSMIT MESSAGE
- If **NO**: Loop back to **b2**
- b6** EXECUTE REGISTRATION PROCESSING
- END**

**Flow Details:**

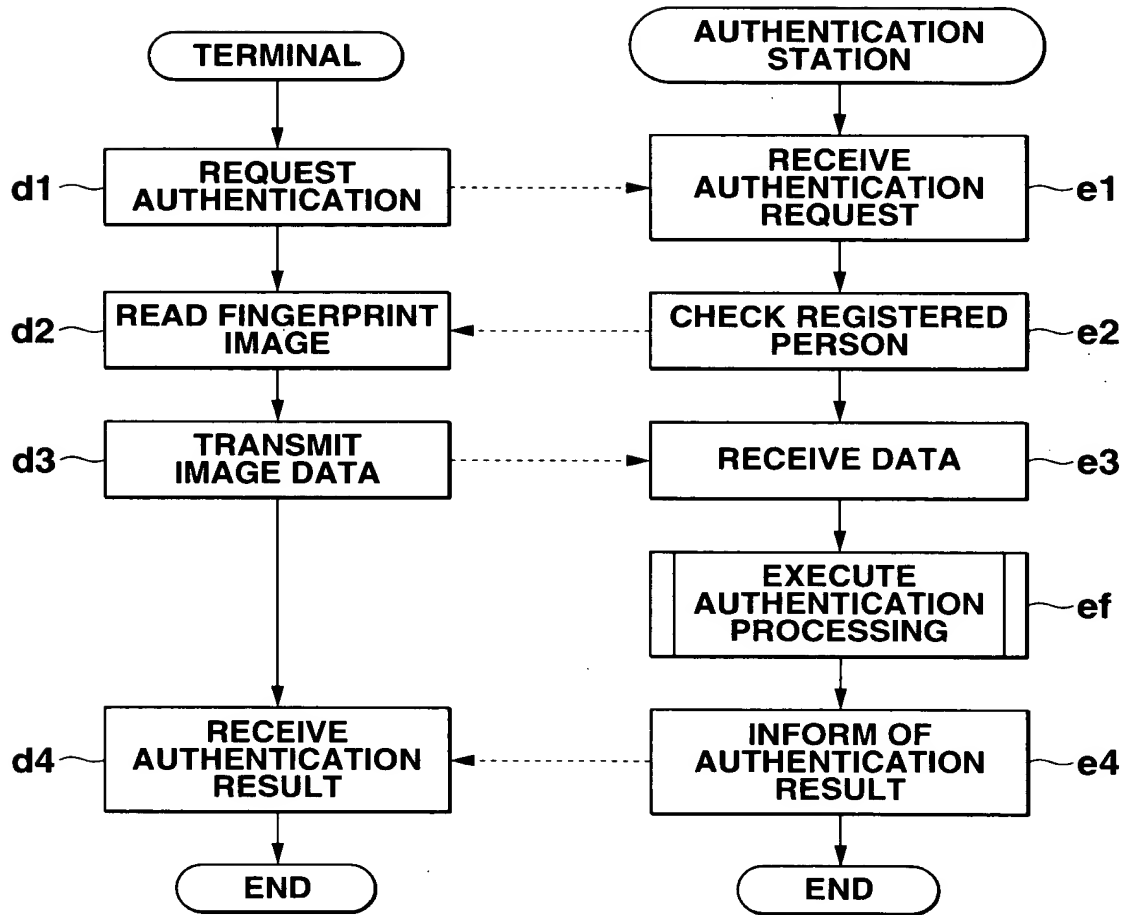
- The process starts at the **TERMINAL** with step **a1**.
- Step **a1** sends a request to the **AUTHENTICATION STATION** (step **b1**).
- The **AUTHENTICATION STATION** responds with a guidance message (step **b2**) to the **TERMINAL** (step **a2**).
- The **TERMINAL** sends an input fingerprint to the **AUTHENTICATION STATION** (step **a3** to **b3**).
- The **AUTHENTICATION STATION** normalizes the image (step **bc**) and checks if it is OK (step **b4**).
- If the image is OK (YES), the **AUTHENTICATION STATION** transmits a message (step **b5**) to the **TERMINAL** (step **a4**).
- If the image is not OK (NO), the process loops back to step **b2**.
- The **TERMINAL** displays a confirmation message (step **a5**) and ends the process.
- The **AUTHENTICATION STATION** executes registration processing (step **b6**) and ends the process.

**FIG.23**



**FIG.24**

00004549.00501



**FIG.25**

09501549.070901

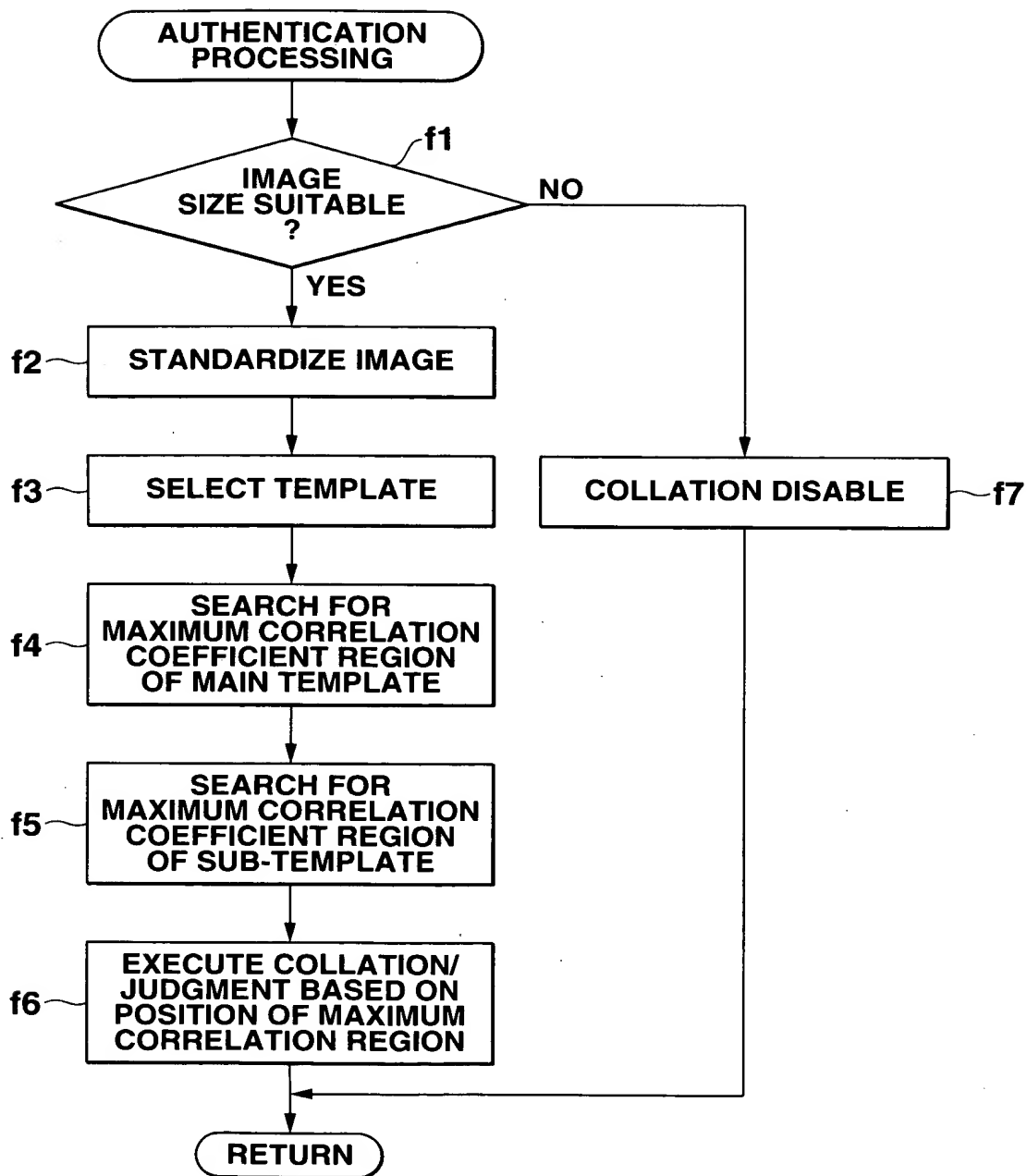


FIG.26



```
graph TD
    subgraph Terminal
        T1([TERMINAL]) --> T2[REQUEST FINGERPRINT DATA]
        T2 --> T3[RECEIVE FINGERPRINT DATA]
        T3 --> T4([END])
    end
    subgraph Authentication_Station [AUTHENTICATION STATION]
        A1[RECEIVE REQUEST] --> A2[CHECK TERMINAL FOR VALIDITY]
        A2 --> A3[EXECUTE IMAGE PROCESSING]
        A3 --> A4[TRANSMIT FINGERPRINT DATA]
        A4 --> A5([END])
    end
    T2 -.-> A1
    A4 -.-> T3
```

The flowchart illustrates the authentication process between a **TERMINAL** and an **AUTHENTICATION STATION**. The process is divided into two main vertical flows, one for the Terminal and one for the Authentication Station, connected by dashed lines representing data exchange.

**Terminal Flow:**

- Starts at the **TERMINAL** oval.
- Proceeds to the **REQUEST FINGERPRINT DATA** rectangle (labeled **g1** on the left).
- Proceeds to the **RECEIVE FINGERPRINT DATA** rectangle (labeled **g2** on the left).
- Ends at the **END** oval.

**Authentication Station Flow:**

- Starts at the **AUTHENTICATION STATION** oval.
- Proceeds to the **RECEIVE REQUEST** rectangle (labeled **h1** on the right).
- Proceeds to the **CHECK TERMINAL FOR VALIDITY** rectangle (labeled **h2** on the right).
- Proceeds to the **EXECUTE IMAGE PROCESSING** rectangle (labeled **h3** on the right).
- Proceeds to the **TRANSMIT FINGERPRINT DATA** rectangle (labeled **h4** on the right).
- Ends at the **END** oval.

**Data Flow:**

- A dashed arrow points from the **REQUEST FINGERPRINT DATA** rectangle (g1) to the **RECEIVE REQUEST** rectangle (h1).
- A dashed arrow points from the **TRANSMIT FINGERPRINT DATA** rectangle (h4) to the **RECEIVE FINGERPRINT DATA** rectangle (g2).

**FIG.27**